

Title: Quantitative Microfluidic Biochip and Method of Use

ABSTRACT

Method is disclosed to provide constant and consistent amount of samples or reagent solutions for performing biological assay in a microfluidic biochip platform. A method and apparatus comprises a plurality of microfluidic channels with constant cross-section area in closed confinement, said microfluidic channels transporting fluids to at least one reaction zone immobilized with biological probes. The fluids in said microfluidic channels is transported to said reaction zone and reacted with the probes. The reaction volume, which is equal to the cross-section area multiply with the length of said channel overlaid on said reaction zone, is therefore a constant number. In addition, a method for immobilizing an array of biological probes in the microfluidic biochip arrangement, which is simple, flexible, and controllable for immobilizing, removing, and replenishing new probes is disclosed.